



王福山

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor/Applicant:

Menachem Nathan

Serial No.: 10/572,555

Filed: 17 March 2006

For: Integrated Microlens Reflector And  
Light Coupler

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## Group Art Unit:

Attorney Docket No.: 27/277

**Examiner:**

Commissioner of Patents and Trademarks  
Alexandria, VA 22313-1450

## INFORMATION DISCLOSURE STATEMENT

Sir:

Enclosed is PTO Form 1449 which lists citations which may be material to the patentability of the above-identified application.

These are being submitted in compliance with the duty of disclosure defined in 37 C.F.R. 1.56. The Examiner is requested to make these citations of official record in this application.

This Information Disclosure Statement Under 37 C.F.R. 1.56 is not to be construed as a representation that a search has been made, that additional matter which is material to the examination of this application does not exist, or that any one or more of these citations constitutes prior art.

Respectfully submitted,

Mark M. Friedman  
Attorney for Applicant  
Registration No. 33,883

Date: July 27, 2006



Sheet 1 of 1

Form PTO-1449 (Modified)

Atty. Docket No.  
27/277

Application No.  
10/572,555

INFORMATION DISCLOSURE CITATION  
IN AN APPLICATION  
(USE SEVERAL SHEETS IF NECESSARY)

Applicant:  
Menachem Nathan

Filing Date:  
March 17, 2007

Group Art Unit:

U.S. PATENT DOCUMENTS

|    | EX.<br>INITIAL | DOCUMENT<br>NUMBER | DATE | NAME | CLASS | SUB-<br>CLAS-<br>S | FILING<br>DATE |
|----|----------------|--------------------|------|------|-------|--------------------|----------------|
| AA |                |                    |      |      |       |                    |                |
| AB |                |                    |      |      |       |                    |                |
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| AD |                |                    |      |      |       |                    |                |
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| AG |                |                    |      |      |       |                    |                |
| AH |                |                    |      |      |       |                    |                |
| AI |                |                    |      |      |       |                    |                |

FOREIGN PATENT DOCUMENTS

|    |  | DOCUMENT<br>NUMBER | DATE | COUNTRY | CLASS | SUB-<br>CLASS | TRANSLATION |    |
|----|--|--------------------|------|---------|-------|---------------|-------------|----|
|    |  |                    |      |         |       |               | YES         | NO |
| AJ |  |                    |      |         |       |               |             |    |
| AK |  |                    |      |         |       |               |             |    |
| AL |  |                    |      |         |       |               |             |    |

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

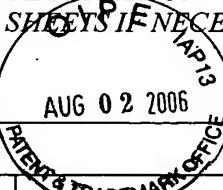
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|----|--|---|
| AM |  | Monolithic Coupling of a SU8 Waveguide to A Silicon Photodiode by M. Nathan et al Journal Of Applied Physics, Vol. 94 pp. 7932-7934, 2003                                   |
| AN |  | Chapter 2 of thesis: Fabrication and Characterization of a Monolithic Integration Between Planar Waveguide and Photodiode by Oren Levy, TA University June 2003             |
| AO |  | M.H. Wu and G.M. Whitesides, J. Micromech, Microeng. 12 (2002), pp. 747-758 Fabrication of two-dimensional arrays of Microlenses and their applications in Photolithography |

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformation and not considered. Include copy of this form with next communication to applicant.

| Form PTO-1449 (Modified)  |         |  |      | Atty. Docket No.<br>27/277     | Application No.<br>10/572,555 |           |             |             |
|---|---------|--|------|--------------------------------|-------------------------------|-----------|-------------|-------------|
| INFORMATION DISCLOSURE CITATION<br>IN AN APPLICATION<br>(USE SEVERAL SHEETS IF NECESSARY)   |         |  |      | Applicant:<br>Menachem Nathan  |                               |           |             |             |
|   |         |  |      | Filing Date:<br>March 17, 2006 | Group Art Unit:               |           |             |             |
| U.S. PATENT DOCUMENTS   |         |  |      |                                |                               |           |             |             |
|   | INITIAL | DOCUMENT NUMBER  | DATE | NAME                           |                               | CLASS     | SUB-CLASS   | FILING DATE |
| BA  |         |  |      |                                |                               |           |             |             |
| BB  |         |  |      |                                |                               |           |             |             |
| BC  |         |  |      |                                |                               |           |             |             |
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| BII   |         |  |      |                                |                               |           |             |             |
| FOREIGN PATENT DOCUMENTS  |         |  |      |                                |                               |           |             |             |
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|   |         |  |      |                                |                               |           | YES         | NO          |
| BJ  |         |  |      |                                |                               |           |             |             |
| BK  |         |  |      |                                |                               |           |             |             |
| BL  |         |  |      |                                |                               |           |             |             |
| OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)  |         |  |      |                                |                               |           |             |             |
| BM  |         | S. Chen et al. Infrared Physics & Technol. - Monolithic Integration Technique for Microlens Arrays with Infrared Focal Plane Arrays Vol 43, pp. 109-112, (2002)                          |      |                                |                               |           |             |             |
| BN  |         | M.V. Kunnavakkam et al, Applied Physics Letters- "Low Cost, Low-loss microlens arrays fabricated by soft-lithography replication process, Vol. 82 pp. No. 8, 1152-1154, (2003)           |      |                                |                               |           |             |             |
| BO  |         | N.P. Eisenberg et al.; Materials Science in Semiconductor Processing , Vol 3, pp. 443-448, 2000 ; "New Types of Microlens Arrays for the IR Based on Inorganic Chalcogenide Photoresists |      |                                |                               |           |             |             |
| EXAMINER  |         |  |      | DATE CONSIDERED                |                               |           |             |             |
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| <br>AUG 02 2006<br>13  |                  |  | Filing Date:<br>March 17, 2006 |         | Group Art Unit:               |           |  |
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|   | EXAMINER INITIAL | DOCUMENT NUMBER  | DATE                           | NAME    | CLASS                         | SUB-CLASS | FILING DATE  |
| CA  |                  |  |                                |         |                               |           |  |
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| CI  |                  |  |                                |         |                               |           | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| CJ  |                  |  |                                |         |                               |           |  |
| CK  |                  |  |                                |         |                               |           |  |
| CL  |                  |  |                                |         |                               |           |  |
| <b>OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)</b>   |                  |  |                                |         |                               |           |  |
| CM  |                  | Journal of Optoelectronics and Adv. Materials Vol 2, No. 2, 2000, pp. 147-152, 2000<br>"Infrared Microlems Arrays Based on Chalcogenide Photoresist, Fabricated By Thermal Reflow Porcess" |                                |         |                               |           |  |
| CN  |                  | Journal of Optoelectronics and Adv. Materials Vol 4, Nr.2 (June 2002)- pp. 405-407, "As2S3 Based Arrays of Large-Size IR Microlenses"  |                                |         |                               |           |  |
| CO  |                  | M. He et al., Applied Optics, Vol. 42, No. 36 pp.7174-7178, (2003) "Reflow Technique for the Fabrication of An Elliptical Mircolens Array in Sol-Gel Material"                             |                                |         |                               |           |  |
| CP  |                  | M. Nathan, Journal of Applied Physics; Vol. 94, No. 12 , pp. 7932-7934 (Dec. 15, 2003) "Monolithic Coupling of a SU8 Waveguide to a Silicon Photodiode."                                   |                                |         |                               |           |  |
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| DA  |                |   |                                |                               |       |               |                |
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| DG  |                |   |                                |                               |       |               |                |
| DH  |                |   |                                |                               |       |               |                |
| DI  |                |   |                                |                               |       |               |                |
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| DJ  |                |   |                                |                               |       |               | YES      NO    |
| DK  |                |   |                                |                               |       |               |                |
| DL  |                |   |                                |                               |       |               |                |
| OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)  |                |   |                                |                               |       |               |                |
| DM  |                | M. Nathan; Applied Physics Letters Vol 85, No. 14; (Oct 2004) pp. 2688-2690 "Microlens Reflector For Out-of Plane Optical Coupling of A Waveguide to A Buried Silicon Photodiode" |                                |                               |       |               |                |
| DN  |                | Y. Ohmori et al., Thin Solid Films 393 (2001) 267-272, "Organic Electroluminescent Diodes As a Light Source for polymeric waveguides- toward organic integrated optical devices   |                                |                               |       |               |                |
| DO  |                |   |                                |                               |       |               |                |
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